

**REMARKS:**

Independent claims 36, 52, and 57 have been amended to add the limitation that the polyester in the foamed layer be polyethylene terephthalate or a polyethylene terephthalate copolymer in which up to 20% of the moles derived from terephthalic acid are substituted by units deriving from isophthalic and/or naphthalene-dicarboxylic acid. Support for this can be found at page 6, lines 11-14 of the specification.

As discussed later, this amendment limiting the polyester to polyethylene terephthalate and its acid modified copolymers limits the foamed polyester to aromatic polyesters containing ethylene glycol, also known as mono-ethylene glycol and the foamed product Wilson et al is a polyurethane which is the reaction product of polyesters containing di, tri or polyethylene glycol. (See Nowak Declaration at 10 and 12) at Thus Wilson et al does not disclose a foamed density suitable for the claimed polyesters of the invention.

The disclosure was objected to because there was no claim 62. To overcome this basis of objection the claims have been amended to identify claim 62 as being canceled.

Claims 36, 52-53, 56-58, and 61 have been rejected under 35 U.S.C. §103(a) as being obvious over the teachings of Roulin et al (United States Patent 5,508,075) in view of Kimura et al (United States Patent 5,972,445) and Wilson et al (United States Patent 3,170,832). However, it is the Applicant's position that these claims are not rendered obvious by the teachings of Roulin in view of Kimura and Wilson and the Examiner is accordingly respectfully requested to reconsider his position.

An objective of Roulin is to provide a packaging laminate that is flexible and readily capable of being formed into packages using conventional packaging machines. Another object of Roulin is to provide a packaging laminate that may be readily disposed of without harm to the environment. These objectives are accomplished by a laminate having a substrate on which a layer of silicon oxide is applied by chemical plasma deposition. The silicon oxide that is deposited is reported to be of the general formula  $\text{SiO}_x$  wherein  $x$  is within the range of 1.5 to 2.2 (see Roulin at column 1, lines 45-56). Roulin further reports that a thin coating of  $\text{SiO}_x$  provides an effective oxygen barrier when coated on a thermoplastic substrate by plasma enhanced chemical vapor deposition (PECVD). These are not the objectives of the present invention and recyclable containers now being claimed do not require a  $\text{SiO}_x$  layer. In fact, the closed-ended transitional language in claim 57 precludes the presence of a  $\text{SiO}_x$  layer in the recyclable container being claimed.

The teachings of Roulin fail to disclose or to render obvious numerous aspects of recyclable container now being claimed. The Applicant and the Examiner are in agreement that Roulin fails to disclose a foamed sheet having a density of less than  $700 \text{ kg/m}^3$  and a crystallinity of lower than 15%, a heat sealable film having a crystallinity of lower than 15%, and a container that is recyclable. In appreciation of these shortcomings in the teachings of Roulin the Examiner is attempting to combine the teachings of Kimura and Wilson with those of Roulin. However, the Applicant does not believe that the teachings of either Kimura or Wilson can properly be combined with the teachings of Roulin. The Applicant further believes that even if the teachings of Kimura and Wilson were combined with those of Roulin that the invention now being claimed would still not be rendered obvious.

The recyclable container now being claimed calls for a heat-sealable coextruded dual layer film having (i) a first layer of low melting aromatic polyester having a melting point which is within the range of  $50^\circ\text{C}$  to  $200^\circ\text{C}$  and (ii) a second layer of an aromatic polyester having a melting point higher than  $200^\circ\text{C}$ . The Applicant and the Examiner are in agreement that Roulin fails to disclose a polyester film having a melting point of  $50^\circ\text{C}$  to  $200^\circ\text{C}$  and are in further agreement that Roulin fails to disclose a container in which the heat sealable film comprises two layers. However, the Examiner is taking the position that one of ordinary skill in the art would recognize the utility of varying the melting point to obtain a desired heat seal temperature and that it would be obvious to provide for additional layers. The Applicant does not agree with the Examiner on either of these points. Employing a heat-sealable film that includes two layers is not obvious. The layer having a low melting point is not a mere duplication of the layer having a high melting point as the Examiner has suggested. Each layer provides its own critical function with respect to the operability of the recyclable container now being claimed and is not a mere duplication of the other. Furthermore, the Examiner has provided no basis for his assertion that persons of ordinary skill in the art would know to vary the melting point of only one of the layers of the heat-sealable film to attain the desired result. Accordingly, it is not obvious to include a heat-sealable coextruded dual layer film having (i) a first layer of low melting aromatic polyester having a melting point which is within the range of  $50^\circ\text{C}$  to  $200^\circ\text{C}$  and (ii) a second layer of an aromatic polyester having a melting point higher than  $200^\circ\text{C}$  in the recyclable containers now being claimed.

The Examiner has indicated that Roulin discloses a layer of foamed sheet comprising polyester at column 3, lines 54-63. However, this assertion is not accurate. Roulin only discloses the utilization of a layer of foamed polyester in conjunction with the structure illustrated in Fig. 8 (see column 6, lines 17-23). In Fig. 8 the foamed core layer 42 is bonded to an outer surrounding layer 43 of heat-sealable thermoplastic. In contrast to the invention now being claimed the surrounding layer 43 of heat-sealable thermoplastic is a single layer rather than the two layer coextruded dual layer film called for in the claims of the subject patent application. The structure shown in Fig. 8 can also be contrasted to the invention specified in claim 57 in that it includes a layer of  $\text{SiO}_x$  45 and a carrier layer 44 of thermoplastic. The inclusion of such layers is outside of the scope of the invention called for in claim 57 by virtue of claim 57 using the closed-ended transitional language "consists of." It should be further noted that a layer of  $\text{SiO}_x$  is called for in all of the structures disclosed by Roulin.

The Examiner has combined the teachings of Kimura with those of Roulin in an attempt to show that the use of polyester having a crystallinity of less than 15% was obvious. However, persons having ordinary skill in the art would not arrive at the invention now being claimed by combining the teachings of Kimura with those of Roulin for several reasons. For instance, the packaging laminate described by Roulin is folded along crease lines into gable top cartons that are heat sealed. This is in contrast to the multilayer polyester sheets described by Kimura which are vacuum formed, air-pressure formed, snap-back formed, reverse draw formed, air-slip formed, or plug-assist formed into an article. Also, the foamed sheet of the instant invention and that described in Roulin has many tiny bubbles dispersed in it and is not transparent (see the Rollick Declaration at Paragraph 8 and Paragraph 11). In contrast, the sheet of Kimura must be transparent (see column 2, line 48). In fact, the replacement of non-transparent crystallized polyester with transparent amorphous polyethylene naphthalate is the objective of Kimura (see column 1, line 62 and column 4, lines 42-49). Accordingly, persons having ordinary skill in the art would not combine a transparent sheet of Kimura with a non-transparent foamed sheet of Roulin.

The Examiner has also combined the teachings of Wilson with those of Roulin in an attempt to show that it was obvious to utilize a layer of foamed polyester having a density of less than  $700 \text{ kg/m}^3$  in the recyclable container being called for in the claims. However, as discussed in the attached declaration of Dr. Nowak, the foamed product of Wilson is not a

polyester, but is a polyurethane. (See also title of United States Patent No. 2,961,418 also to Wilson and mentioned in Wilson calling the products polyurethanes). A polyurethane is the reaction product of polyesters of long chained glycols (not ethylene glycol) and isocyanates. One of ordinary skill in the art of polyesters would not refer to a document teaching polyurethanes to determine the density necessary to make a foldable sheet from aromatic mono-ethylene glycol. As noted in Dr. Nowak's declaration, the polyester containing ethylene glycol is not one of the special polyesters noted in Wilson.

Another reason one of ordinary skill would not combine Roulin with Wilson is that the polyurethane of Wilson relates to laminated products that are used in manufacturing upholstering materials. The teachings of Wilson have virtually nothing to do with containers for food products or beverages. Persons having ordinary skill in the art would not be motivated to combine the teachings of Wilson with those of Roulin. This is because the compositions described by Wilson would not be suitable for utilization as packaging for food products or beverages.

The Wilson patent cited by the Examiner does not disclose densities of less than 700 kg/m<sup>3</sup>. However, United States Patent 2,961,418 referenced at column 1, line 25 of Wilson does disclose a foamed polyurethane product having a density of about 0.15 to about 0.025 g/cc (25-150 kg/m<sup>3</sup>). This foamed product is described as being useful in upholstery, mattresses, pillows, sound insulating materials and may other applications where shock absorbing materials are required. These applications are in great contrast to packaging material for food products and beverages. Accordingly, it is not believed that the teachings of Wilson can be properly combined with those of Roulin.

The teachings of Kimura and Wilson cannot be combined with the teachings of Roulin in a manner that renders the composition now being claimed obvious. Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting that combination. ACS Hospital Systems, Inc. v. The Montefiore Hospital, 732 F.2d 1572, 221 USPQ 929 (Fed. Cir. 1984). Thus, the teachings of Kimura and Wilson cannot be combined with the teachings of Roulin in the present case since none of these references suggests such a combination. Persons having ordinary skill in the art would have no logical basis for combining the teachings of Kimura which relate to clear sheets for molding with the teachings of Roulin which relate to non-clear packaging laminates for folding and subsequently heat-sealing into gabled

containers. Persons having ordinary skill in the art would have even less motivation to combine the teachings of Wilson which relate to upholstery with those of Roulin. There is no teaching in any of the cited prior art references that would motivate a person having ordinary skill in the art to combine certain select teachings of the references while ignoring others.

At the time the subject invention was made, persons having ordinary skill in the art would not have piecemealed together the teachings of the references being cited in the manner suggested by the Examiner. Obviousness is not determined by the application of hindsight, or retrospect, with the knowledge of the patentee's discovery. Rather, it is determined as of the time of the invention, based solely on the knowledge disclosed by the prior art as a whole. Republic Industries, Inc. v. Schlage Lock Co., 592 F.2d 963, 200 USPQ 769 (1979); Schnell v. Allbright-Nell Co., 348 F.2d 444, 146 USPQ 322 (1965). A prima facie case of obviousness has not been established. Thus, the claims pending in the subject patent application are not obvious in light of the teachings of the cited prior art references.

A declaration of Dr. Edward N. Nowak is also being submitted herewith. Dr. Nowak's declaration explains that the compositions described by Wilson are toxic in nature and accordingly not been utilized in packaging for beverages or the foods described in Roulin. Accordingly, the teachings of Wilson would never be combined with those of Roulin by a person having ordinary skill in the art to attain the recyclable containers for beverages or foods now being claimed. The declaration of Dr. Nowak is accordingly further evidence in support of the Applicant's position that the teachings of Wilson cannot be properly combined with those of Roulin to arrive at the invention now being claimed.

Dr. Nowak's declaration also notes that the polyurethanes are considered non-recyclable and would therefore not be used in a recyclable package as well.

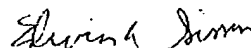
As has previously been pointed out, the Examiner has acknowledged that Roulin does not disclose a recyclable container. To the contrary, the containers of Roulin are designed to be disposable without harming the environment. In fact, the containers of Roulin cannot be made to be entirely recyclable by virtue of the fact that they contain a layer of SiO<sub>x</sub>. It is unclear how one would combine the teachings of Kimura with those of Roulin to make an entirely recyclable container since doing so would destroy the operability of Roulin.

Claim 63 has been rejected under 35 U.S.C. §103(a) as being obvious over the teachings of teachings of Roulin in view of Kimura and Wilson et al in further view of Waters et al (United States Patent 5,232,786). Waters discloses a coextruded multi-layer

structure formed by coextruding a linear alternating polymer of carbon monoxide and at least one ethylenically unsaturated hydrocarbon (a polyketone polymer) with another thermoplastic polymer, without the use of an adhesive or tie layer. The multi-layer structures of Waters are reported to exhibit strong adhesion but can be easily separated (for recycling) once the integrity of either layer is impaired. The other thermoplastic polymer is a cracked polybutylene, nylon-6, nylon-12, a copolyetherester polymer, or polyvinyl chloride. The Examiner has cited Waters to show that it is possible although difficult to recycle products having multiple layers of different materials. This may be the case, however, the recyclable containers now being claimed can be recycled much more easily. In any case, claim 63 is patentable by virtue of being dependent upon claim 61 which is not obvious in light of the cited prior art references. It should be noted that claims 54, 55, 59, and 60 are also allowable by virtue of being dependent upon independent claim 52 or 57.

For the aforementioned reasons every claim now pending in the subject patent application is allowable over the teachings of the cited prior art references. The subject patent application is now in a condition for allowance and such an allowance is respectfully requested.

Respectfully submitted,



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